

COMPONENTS

FAQ

Q Can overclocking damage my computer?

A There is a chance that you could physically damage the components. Running a processor, memory or a graphics card faster than their factory speeds can lead to better performance, but usually means they run hotter. If the computer's cooling isn't adequate then the components could overheat.

Even if the components don't fail, overclocking might make your computer unstable and could mean lost work through crashes. Usually, overclocking up to 15 per cent is safe, though, and the worst that can happen is that you have to reset the BIOS settings to original values.

Overclocking usually voids a warranty, but certain graphics cards and processors (such as AMD's Phenom X4 opposite) are designed for overclocking.

Jim Martin

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SILVERSTONE Sugo SST-SG02B-F

★★★★

£47 inc VAT

From www.scan.co.uk



If you want a compact PC, you could buy a barebones chassis from a manufacturer such as Shuttle. However, its integrated motherboard and power supply may not be right for your needs. The SST-SG02B-F is designed to fit a wide range of standard components in a relatively small case.

It is designed to take a microATX motherboard, giving you a wide range of options. You can use any standard ATX power supply, so power-hungry graphics cards won't be a problem. The supply sits directly above the motherboard, which limits you to processor coolers of up to 87mm in height, but both Intel's and AMD's stock designs will fit.

Measuring 212x270x393mm, the SST-SG02B-F certainly isn't as small as a Shuttle XPC. The front panel has a glossy black finish, with a large flap hiding the front ports. These consist of the usual audio-in, audio-out, FireWire and two USB ports. One oversight is the lack of drive bay doors for optical drives. This means you'll have to find one with a glossy black fascia to match the chassis; LG's GGW-H20L (see 'Also consider...', page 52) should fit the bill.

There are two 5¼in external drive bays, the lower of which can be converted to a 3½in bay using the supplied adaptor. This means there's not enough space for a memory card reader and two optical drives. Beneath these is an internal drive bay with space for two hard disks. These must be screwed on to metal caddies, which slide into the bay. There's no vibration dampening provided to help reduce noise. An 80mm intake fan at the back of the bay draws cool air over the drives.

Silverstone claims you can fit even the largest graphics cards in this case.

SUMMARY

- ✓ Small design
- ✓ Room for large graphics cards
- ✗ No optical drive bay doors

MICROATX CASE 2x 5¼in bays, 2x 3½in bays (internal), 2x USB2, FireWire, audio-in, audio-out ports, two-year RTB warranty
PART CODE SST-SG02B-F
DETAILS www.silverstonetek.com

However, any card over 245mm in length will prevent you connecting the SATA cable to one of your hard disks. If you want two hard disks and a large graphics card, you'll need to replace the 80mm intake fan, which is 25mm deep, with a more slender 10mm or 15mm design. You can then move the hard disk bay back, giving you more space. Choose your replacement fan carefully to make sure that you get a silent model that won't make your PC noisy.

The plentiful ventilation holes let cool air in, but no exhaust fans are provided with this case. Fortunately, there are two 80mm fan mountings with vents on the top of the case, so you can fit your own. With both 80mm fans fitted, we can't imagine you will have any overheating problems. Again, choose your fans carefully to make sure that you keep your PC silent.

A range of specially designed accessories is available for this microATX case. These include the ST50EF-PLUS-EC power supply (as none is supplied with the case), which has short leads that won't clutter up your case. There are also processor coolers and fans, and even a carry bag. None of these are essential extras, though. At £47 including VAT, plus the price of one or two 80mm fans, the Sugo SST-SG02B-F is good value, and a fine choice for those wanting to build a mini PC.

Seth Barton

Also consider...

INTEL Core 2 Duo E8400

★★★★★

£120 inc VAT

From www.lambda-tek.com/components

COMPUTER SHOPPER
BEST BUY



We've consistently been impressed by the Core 2 Duo range, with certain models producing incredible performance per pound. The new 8000-series means that our previous favourite – the E6750 – has had to give way for the E8400. It's one of the fastest dual-core processors currently available, yet costs just £120. The E8500 is faster still, but the E8400 is better value.

PROCESSOR Two cores running at 3GHz, LGA775, 333MHz (1,333MHz quad-pumped FSB), 6MB L2 cache
PART CODE BX80570E8400
DETAILS www.intel.com
FULL REVIEW June 2008



GIGABYTE GA-MA78GM-S2H

★★★★★

£54 inc VAT

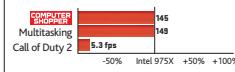
From www.lambda-tek.com/components

COMPUTER SHOPPER
BUDGET BUY



This is an ideal microATX motherboard for a media centre PC. It has all the outputs you need, including HDMI and S/PDIF. Its integrated graphics processor might not be powerful enough for the latest games, but it can play Blu-ray movies. The 780G chipset supports the latest Phenom X3 and X4 processors, but you can opt for a budget Athlon X2 if you prefer.

AMD MOTHERBOARD AM2+ socket, AMD 780G/AMD SB700 chipset, 256MB Radeon HD 3200 graphics, 4x DDR2 667/800/1066 slots, 1x PCI-E x16, 2x PCI, 5x SATA/300, 4x USB2, 1x eSATA, 1x FireWire, 1x 10/100/1,000 Ethernet ports
PART CODE GA-MA78GM-S2H
DETAILS www.giga-byte.com
FULL REVIEW June 2008



MSI N9800GTX-T2D512

★★★★

£223 inc VAT

From www.aria.co.uk

MSI's latest graphics card aims to replace the older GeForce 8800 GTX cards, which originally cost over £400. Like other GeForce 9-series cards, the MSI's graphics processor is based on the same technology as the GeForce 8800GT and 8800GTS.

However, this N9800GTX-T2D512 has a whopping 128 stream processors running at 675MHz and 512MB of DDR3 memory running at 2.2GHz. This is cooled by a huge heatsink and fan, which requires a lot of room inside your case, so make sure you have at least 280mm of clearance to ensure it doesn't foul any hard disks. The benefit of this heatsink is that the fan doesn't need to work so hard, and proved quiet during testing. Make sure your power supply is up to the job, as the card needs two six-pin PCI-E connectors.

The N9800GTX-T2D512 supports three-way SLI, allowing you to install three of them for even better performance, even if it is at a wallet-busting price. A more useful feature is HybridPower which, like Hybrid CrossFire, means that the N9800GTX-T2D512 can work in tandem

with a motherboard's integrated nVidia graphics processor for a slight performance boost. Alternatively, you can opt to revert to the onboard graphics when you're not playing games to cut power consumption.

In our game tests, this card didn't break a sweat. The figures show that it can play the latest games at high detail settings. In Crysis at 1,280x1,024 with high settings, it managed 38.3fps with no anti-aliasing or anisotropic filtering. It also played Blu-ray movies smoothly.

In the box you get an adaptor cable for component video-out and a DVI-to-HDMI converter for connecting the card to an HD TV. The 9800GTX is £40 cheaper than Sapphire's Radeon HD 3870X2, but it's also proportionally slower. Furthermore, you can buy a 512MB GeForce 8800GT-based card for £100 less. These cards aren't quite as fast, but will play the latest games, making this card look overpriced.

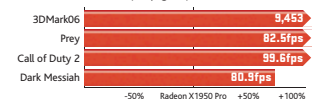
Jim Martin

SUMMARY

- ✓ Excellent performance
- ✓ HybridPower
- ✗ Expensive

PCI EXPRESS GRAPHICS CARD Nvidia GeForce 9800GTX chipset, 675MHz core speed, 512MB DDR3 memory running at 2.20GHz, PCI Express x16 2.0 interface
PART CODE N9800GTX-T2D512
DETAILS www.msicomputer.co.uk

PERFORMANCE (see page 64)



AMD Phenom X4 9850 Black Edition

★★★★★

£152 inc VAT

From www.ebuyer.com

AMD's brand-new flagship quad-core processor arrived too late to make it into our processors Labs last month. It's one of four new models, the others being the 9550, 9650 and 9750. AMD also introduced X4 into the model name, so it's clear how many cores a processor has. Being a Black Edition, the X4 9850 has an unlocked multiplier that allows you to overclock it using the BIOS controls, or AMD's Overdrive utility for Windows.

The X4 9850 has a clock speed of 2.5GHz and, like all Phenoms, it has a memory controller with its own voltage and clock speed, which is independent of the processor speed. The advantage of this is that DDR2 memory runs at its specified frequency. In the X4 9850, the memory controller runs faster than other Phenoms, at 2GHz rather than 1.8GHz. All three levels of cache remain the same.

In our benchmarks, the X4 9850 was quicker than previous Phenoms reviewed, but it still fell short of expectations. It's

closest rival is the Intel Core 2 Quad Q6600, which is identically priced, but outperformed the X4 9850 in every test. The X4 9850's overall score of 232 doesn't cut it against the Q6600's 250.

Using AMD's Overdrive 2.10, an Asus M3A32-MVP Deluxe motherboard and 1GB of Corsair memory, we could overclock the 9850 to 3.1GHz, which boosted the overall score to 272, an increase of 17 per cent. The multitasking score shot up to

241, and video-editing performance was a few per cent faster than a stock Q6600.

If you're happy to get your hands dirty overclocking a new processor and you own an AMD AM2 or AM2+ motherboard that supports Phenoms, this is great value. If you have a Socket 775 motherboard supporting a 1,333MHz FSB, try a discounted Q6600, since it's about to be discontinued.

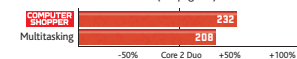
Jim Martin

SUMMARY

- ✓ Unlocked multiplier
- ✓ Excellent value when overclocked
- ✗ So-so performance at stock settings

PROCESSOR Four cores running at 2.5GHz, Socket AM2+, 4x 512KB L2 cache, 2MB L3 cache
PART CODE HD985ZXAGHBOX
DETAILS www.amd.com

PERFORMANCE (see page 64)



CHOOSING A... Processor

Follow the steps to find your ideal specs

MANUFACTURER: Intel

PROCESSOR: Pentium Dual Core E2140

SOCKET: LGA775

Recommended minimum in grey

1 A processor with the minimum specifications above costs around £45. It's reasonably fast, but is best suited to standard office applications. As it uses the established LGA775 interface you may not need a new motherboard to match, but check whether your particular board supports a dual-core Pentium.

2 If you're upgrading only your processor, you'll be limited by your motherboard's socket type. AMD Socket 754 boards provide the least choice; an Athlon 64 3400+ is the fastest compatible processor. Socket 939 motherboards provide more options, including dual-core X2 processors going up to the fast FX-60. Socket AM2 is the latest standard and supports AMD's full range.

Intel's LGA775 socket has been around for a few years, but check your motherboard's manual for processor support as only the latest chipsets support Intel's Core 2 Duo and Core 2 Quad processors.

3 If you're building a PC from scratch, it's best to pick the processor first and choose a motherboard to match. If you're building a basic office PC, a budget dual-core processor is fine. If you do a lot of intensive tasks, an Intel Core 2 Duo or Quad is a better choice.

The Core 2 Duo range is our current favourite. The good news is that a recent price drop means you can buy the very quick E8400 (see 'Also consider...', left) for just £120. If your motherboard doesn't support Core 2 Duo, it's worth upgrading as the Pentium D range of dual-core processors is no longer available. Avoid single-core Pentium 4s and Athlon 64s as they aren't good value.

4 Intel's Extreme processors and AMD's Black Edition processors are multiplier-unlocked, so you can overclock them without affecting your memory or other components. However, the Core 2 Extreme X6800 costs around £650.

5 You can buy Intel's mobile Core 2 Duo and Core Duo processors, too. However, you'll need a motherboard or barebones PC that's compatible with Socket P. Mobile processors are more expensive, so buy one only if you need to.